

Notice of Allowability

Application No.

10/702,348

Examiner

Jason C. Olson

Applicant(s)

JOHNS ET AL.

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/22/2008.
2. ☒ The allowed claim(s) is/are 1,3-14 and 16-28, renumbered 1-26.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/22/2008 has been entered.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Alan Rego on 2/21/2008.

The application has been amended as follows:

In The Claims:

Claim 1: Line 3, deleted "a read electrode configured to carry" and inserted -a read electrode that carries-.

Claim 3: Line 1, deleted "The apparatus of claim 1" and inserted -The ferroelectric transducer of claim 1-. Line 2, deleted "the read electrode configured to apply" and inserted -a read electrode that applies-. Line 5, deleted "and is configured to impress" and inserted -and impresses-.

Claim 4: Line 1, deleted "The apparatus of claim 3" and inserted -The ferroelectric transducer of claim 3-.

Claim 5: Line 1, deleted "The apparatus of claim 3" and inserted -The ferroelectric transducer of claim 3-.

Claim 6: Line 1, deleted "The apparatus of claim 1 including a controller configured to apply" and inserted -The ferroelectric transducer of claim 1 including a controller that applies-.

Claim 7: Line 1, deleted "The apparatus of claim 3 including a controller configured to apply" and inserted -The ferroelectric transducer of claim 3 including a controller that applies-.

Claim 8: Lines 1-3, deleted "A data storage system including a ferroelectric transducer in accordance with claim 1 configured to move relative to a storage medium having a surface of a ferroelectric material." and inserted -A data storage system comprising: a ferroelectric transducer that moves relative to a ferroelectric storage medium, the ferroelectric transducer comprising: a read electrode that carries an electrical charge of a first charge polarity orientation proximate a ferroelectric domain of the ferroelectric storage medium which has a second charge polarity orientation; an electric shield which extends around the read electrode arranged to confine an electric field and thereby reduce noise sensed by the read electrode and increase spacial resolution of the read electrode; and wherein the ferroelectric domain changes polarity and an electrical readback current flows in the read electrode when the first charge polarity orientation and the second charge polarity orientation are opposite.-

Claim 9: Line 1, deleted "The apparatus of claim 8" and inserted -The data storage system of claim 8-.

Claim 10: Line 1, deleted "The apparatus of claim 9" and inserted -The data storage system of claim 9-.

Claim 11: Line 1, deleted "The apparatus of claim 9" and inserted -The data storage system of claim 9-.

Claim 12: Line 1, deleted "The apparatus of claim 11" and inserted -The data storage system of claim 11-.

Claim 13: Lines 3-4, deleted "an array of ferroelectric transducers in accordance with claim 1; and an actuator configured to move the storage medium relative to the array." and inserted -an array of ferroelectric transducers; and an actuator that moves the storage medium relative to the array, wherein each ferroelectric transducer of the array of ferroelectric transducers comprises: a read electrode that carries an electrical charge of a first charge polarity orientation proximate a ferroelectric domain of the ferroelectric storage medium which has a second charge polarity orientation; an electric shield which extends around the read electrode arranged to confine an electric field and thereby reduce noise sensed by the read electrode and increase spacial resolution of the read electrode; and wherein the ferroelectric domain changes polarity and an electrical readback current flows in the read electrode when the first charge polarity orientation and the second charge polarity orientation are opposite.-

Claim 19: Lines 1-2, deleted "A disc storage including a ferroelectric transducer implementing the method of claim 14." and inserted -A method implemented in a disc storage system having a ferroelectric transducer that reads data stored on a ferroelectric storage medium, the method comprising: applying an electric charge to a read electrode placed proximate a ferroelectric domain having a first charge polarity on the ferroelectric medium; shielding the read

electrode with an electric shield, which extends around the read electrode, to confine an electric field and thereby reduce noise sensed by the read electrode and increase spacial resolution; and sensing an electrical current in the read electrode due to the charge polarity of the ferroelectric domain switching from the first charge polarity to a second charge polarity when the first charge polarity is the same as a charge polarity of the read electrode.-

Claim 26: Line 1, deleted "The apparatus of claim 25" and inserted -The ferroelectric transducer of claim 25-.

Claim 27: Line 1, deleted "The apparatus of claim 26" and inserted -The ferroelectric transducer of claim 25-.

Claim 28: Line 1, deleted "The apparatus of claim 26" and inserted -The ferroelectric transducer of claim 26-.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: Claims 1, 3-14, and 16-28 are allowed as the prior art, in particular Saito et al. (US Pat. 5,886,922) and Onoe et al. (US Pat. 7,221,639), does not teach or suggest the applicant's invention. Claims 1, 8, 13, 14, 19, and 25 teach a method and apparatus for a ferroelectric transducer. The distinguishing elements of the claims teach a read electrode that carries an electrical charge of a first charge polarity orientation proximate a ferroelectric domain of the ferroelectric storage medium which has a second charge polarity orientation; an electric shield which extends around the read electrode arranged to confine an electric field and thereby reduce noise sensed by the read electrode and increase spacial resolution of the read electrode; and wherein the ferroelectric domain changes

polarity and an electrical readback current flows in the read electrode when the first charge polarity orientation and the second charge polarity orientation are opposite.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Saito et al. reference relates to a probe device for memory device having multiple cantilever probes. The Onoe et al. reference relates to a pickup device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason C. Olson whose telephone number is (571)272-7560. The examiner can normally be reached on Monday thru Thursday 7:30-5:30; alternate Fridays.

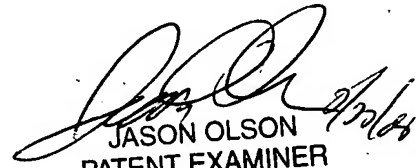
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William R. Korzuch can be reached on (571)272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JASON OLSON
PATENT EXAMINER